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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/531,037	05/10/2005	Christian Uphoff	123478	4702
25944	7590	12/05/2005	EXAMINER	
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			BARRY, CHESTER T	
		ART UNIT		PAPER NUMBER
		1724		

DATE MAILED: 12/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/531,037	UPHOFF, CHRISTIAN
	Examiner Chester T. Barry	Art Unit 1724

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on 11 October 2005.
- 2a) This action is FINAL.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-15 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 12 April 2005 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____.
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>7/11/05</u> .	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____.

Claims 1 – 5, 7, 10-12, 14-15 are rejected under 35 USC Sec. 102(b) as anticipated by Heller.

USP 5194161 to Heller describes a process for the purification of water, characterized in that a solution containing a proportion of a mixed microbiotic culture (col 15 line 55) is added to the water in an environment (body of oil-contaminated water) having catalytic activity (Heller claims 1 – 4). The catalytically active environment is brought about by catalytically active surfaces, e.g., bead surfaces. A ceramic (col 3 line 46) surface doped with catalyst substances is used as said catalytically active surface. Inorganic catalyst compounds are used as catalyst substances, e.g., titanium dioxide. Per claim 7, the mixed culture contains luminous bacteria, e.g., *Beneckea* (Heller, Table 1, applicant [0028]), and photosynthetically active microorganisms, e.g., *Erwinia*,<sup>1</sup> in a biological solution. Per claim 9, as noted above, Heller describes use of mixed cultures of the microorganisms listed in Table 1. Per claim 10, Heller describes the solution containing trace elements and/or other microorganisms. Per claim 11, being a natural body of water, the water is naturally stirred continuously or intermittently by the wind. Per claim 12, Heller describes the use of the invention to purify process effluents. Claim 14 is met because natural bodies of water are public places. Per claim 15, Heller describes the use of algae-decomposing fungi.<sup>2</sup>

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Heller as applied to claim 5 above, further in view of USP 6686309. Heller does not appear to describe tile as a catalyst support. The '309 describes tile as a conventional support for heterogeneous catalysis. It would have been obvious to have substituted tile for

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<sup>1</sup> US 20020051998 A1 reads:

[0164] As noted above, a "phytoene desaturase" is an enzyme that introduces two desaturations in phytoene to produce [.zeta.]-carotene, as in plants and cyanobacteria; three desaturations to produce neurosporene, as in *Rhodobacter*; or four desaturations to produce lycopene, as in *Erwinia* and other photosynthetic bacteria (Garcia-Asua et al., Trends Plant Sci., 1998, 3:445-449).

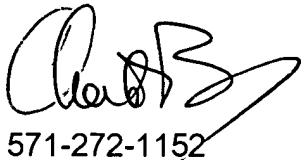
(emphasis added)

<sup>2</sup> Heller states:

Fungi tend to be relatively minor components of the marine microflora, increasing in numbers in nearshore regions, the intertidal zone, and salt marshes and mangrove areas. Fungi are important inhabitants of specialized niches such as submerged wood, the surface film of water, decomposing algae, and the surface of tarballs. A hydrocarbon-degrading fungus, *Cladosporium resinae*, tends to degrade petroleum if added as an inoculum.

Heller's ceramic support in view of the recognition in the catalytic processing field of endeavor that tile is a suitable support for heterogeneous catalysis, as shown by '309.

Claims 8, 9, 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heller. Given Heller's description of use of photosynthetic bacteria, i.e., *Erwinia*, it would have been obvious to have used any other photosynthetic microorganisms, e.g., facultatively phototropic microorganisms, or combinations thereof. Per claim 9, as noted above, Heller describes use of mixed cultures of the microorganisms listed in Table 1. So it would have been obvious to have selected any combination of *Vibrio*, *Pseudomonas*, or *Beneckea* bacteria for use in the invention. Per claim 13, it would have been obvious to have used Heller's technology to purify any plant effluent stream, e.g., pump sumps and waters in purification plants.



571-272-1152

**CHESTER T. BARRY**  
**PRIMARY EXAMINER**